

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 1-11, 13-26, 39 and 40 are pending in the application. The claims have been amended to replace "consisting essentially of" with "consisting of." Basis for new claim 39 can be found in the originally filed application, including at original claim 1, page 4, line 1, page 5, lines 6-15, and page 9, line 9. Basis for new claim 40 can be found in the originally filed application, including at original 1 and page 4, line 3 through page 5, line 15. No new matter has been added.

Withdrawn claims 27-38 have been canceled. Applicant reserves the right to pursue the subject matter of claims 27-38 in a Divisional Application.

The rejection of claims 1-12, 14, 16 and 17 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,068,804 (Betzner) is respectfully traversed. Betzner does not anticipate the claimed invention for the following reasons.

Claim 1 recites the preamble "consisting of," which excludes the asphalt and rubber of Betzner. Thus, the composition and method of Betzner cannot anticipate present claims 1-12, 14, 16 and 17. Accordingly, withdrawal of the Section 102 rejection is respectfully requested.

The rejection of claims 23 and 24 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Betzner is respectfully traversed. Claims 23 and 24 are not anticipated or obvious over Betzner for the same reasons claim 1 is not anticipated or obvious over Betzner, as discussed above. Accordingly, withdrawal of the Section 102 and 103 rejections is respectfully requested.

The rejection of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Betzner is respectfully traversed. Claim 13 is not obvious over Betzner for the same reasons claim 1 is not obvious over Betzner, as discussed above. Accordingly, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Betzner in view of U.S. Patent No. 6,086,720 (Bodary) is respectfully traversed.

Claim 15 is not obvious over Betzner for the same reasons claim 1 is not obvious over Betzner, as discussed above, and for the following reasons. There is no motivation or guidance to combine the teachings of Bodary with Betzner. For that reason alone, the Section 103 rejection should be withdrawn.

Even if Bodary and Betzner were combined, claim 15 would not be obvious over the theoretical combination for the following reasons.

Bodary describes how a main screen is raised through a fiber slurry filled tank where the fibers accumulate onto the surface of the screen as the screen ascends (column 2, rows 23-35). Prior to the main screen being lifted from the liquid, a retainer screen is lowered against the main screen in order to sandwich the fibers so that they do not fall off of the contoured main screen by gravity once out of the liquid. One of ordinary skill in the art would recognize that the equipment is not intended to exert any type of compressive pressure on the fiber but simply intended to improve on previous technology (column 1, line 56 to column 2, line 8) in order to retain the loose fiber in position until it can be dried. Therefore there is nothing in Bodary that would lead the skilled person to adopt the multi-dimensional compression means of the present invention in order to produce a preform with a specific dry bulk density.

Furthermore, one of ordinary skill in the art would easily recognize from the description of the equipment presented in Bodary that no appreciable thickness of fiber could be accumulated on the main screen and that its only interest is in controlling fiber deposition on the contoured main screen (column 2, rows 20-22). Consequently, Bodary could not result in a preform with more than sheet like dimensions and, as a result, the skilled person would not be lead by Bodary to adopt the compressive technique of the present invention to produce a preform with substantial thickness, of at least 5mm.

In view of the lack of motivation to combine Bodary with Betzner, and the many differences between the claimed invention and the theoretical combination of Bodary and Betzner, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claims 18-22, 25 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Betzner in view of U.S. Patent No. 6,403,000 (Symons) is

respectfully traversed. The claimed invention is not obvious over Betzner for the same reasons claim 1 is not obvious over Betzner, as discussed above, and for the following reasons. There is no motivation or guidance to combine the teachings of Symons with Betzner. For that reason alone, the Section 103 rejection should be withdrawn.

Even if Symons and Betzner were combined, the claimed invention would not be obvious over such a theoretical combination for the following reasons.

Symons describes the manufacture of a finished product comprising impregnating lignocellulose material with a composition of mineral oil (5-30% w/w on lignocellulose basis) and a liquid thermosetting resin (1-20% w/w on lignocellulose basis) for the purpose of making the lignocellulose product waterproof.

In Symons, impregnation consists of applying a resin/mineral oil solution to the exterior surfaces of the dry fiber material and then physically compressing the material (thereby reducing the thickness of the material) to promote infusion into the interior (column 1, lines 56-58). There is nothing in Symons that leads one of ordinary skill in the art not to use physical compression to impregnate the dry fiber material with the resin/mineral oil. In contrast, the present invention relies on the ability of a dry, hydrogen bonded lignocellulose fiber shape to absorb the liquid resin without swelling, thereby, not requiring a thickness reducing compression step.

In Symons, curing consists of subjecting the impregnated fiber shape to temperatures as high as 220 C and pressures as high as 800 psi in a mould or suitable press for 20 seconds per mm of material thickness (column 3, lines 1-6). In contrast, the present invention, preferably, but not exclusively, maintains curing temperatures below 100 C in order that water generated during PF (phenol formaldehyde) resin curing does not boil inside the material, which could cause it to rupture. Therefore, in order to accommodate D2 conditions while using a PF resin, a person skilled in the art would maintain the resin concentration well below what would be required to make the material structural. Consequently, there is nothing in Symons that would lead the skilled person to adopt the impregnation or curing conditions of the present invention.

In Symons, the mineral oil serves as a carrier for the resin and therefore low

percentages of liquid resin can be applied while still maintaining good resin distribution throughout the material (column 8, lines 23-25). Also the oil acts as a hydrophobic agent preventing water penetration (column 8, lines 29-33). From this, a skilled person will conclude that the function of the resin in Symons is simply to keep the material together while the oil is there to render it waterproof. In contrast, the present invention relies on the liquid PF resin to fill the fiber material and to serve both of these functions as well as to render the cured material structural.

The crux of Symons is to minimize external water contact with the hydroxyl groups of the lignocellulose by the interposition of a hydrophobic cohesive film formed by the mineral oil/thermosetting resin. Symons acknowledges the prior art objective of minimizing hydrogen bonding by reducing the number of available hydroxyl groups in the lignocellulosic materials by chemical modification with anhydrides.

In contrast, the present invention utilizes hydrogen bonding of the cellulose. See page 5, lines 10-12, which states that the drying is conducted to "maximize the hydrogen bonding between the lignocellulose fibers." Thus, Symons teaches away from the presently claimed invention.

Furthermore, the present invention does not require the use of mineral oil or chemical modification with anhydrides to achieve the objective of a shaped product having the desired long life span and strength:weight. There is nothing in Symons to lead one of ordinary skill in the art not to use mineral oil in the production of lignocellulose-resin products for water proofing purposes only.

It can be, thus, clearly seen that it would not be obvious for one of ordinary skill in the art to combine the teachings of Betzner with Symons, to conceive instant invention as claimed. And, even if Betzner was combined with Symons, the claimed invention is not obvious over such a theoretical combination. Accordingly, withdrawal of the Section 103 rejection is respectfully requested.

New claims 39 and 40 are not anticipated or obvious over Betzner alone or in combination with any of the other cited references. Claim 39 recites a method of making a material having a thickness of at least 5 cm. Betzner teaches how to produce its water-resistant board continuously on a felting machine, such as a

Fourdrinier, Oliver filter, or ordinary cylinder machine. See column 2, lines 25-28 of Betzner. Because of the nature of these machine types, a person skilled in the art implicitly understands that this places an upper limit of about 1 inch on the thickness dimension of the board material being formed. There are a number of reasons for this, such as vacuum drainage rate limitations in the formation zone and continuous sheet cutting limitations prior to drying. The present invention, because of its discreet shape formation, has no such dimensional boundaries. For example, Fig. 2 and the Examples of the present invention describes a discreet shape having a thickness of 5 cm, which would be impossible for Betzner's felting machine to produce. In other words, a discreet shape of any thickness can be envisioned using the techniques of the present invention. Consequently it would be impossible for Betzner to lead a skilled person to produce shapes and adopt the techniques of the present invention as recited in new claim 39.

New claim 40 further defines the dewatering step(s), which is not disclosed in any of the cited references.

In view of all of the rejections of record having been addressed, it is submitted that the present application is in condition for allowance and Notice to that effect is respectfully requested.

Respectfully submitted,

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